Saccharomyces cerevisiae yeast strain for the production of dry red wines

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ABSTRACT

The invention relates to oenology and biotechnology, in particular to a local yeast strain, isolated in the wine center "Trifesti". The Saccharomyces cerevisiae yeast strain is deposited in the National Collection of Nonpathogenic Microorganisms of the Institute of Microbiology and Biotechnology under the number CNMN-Y-36 and is recommended for the production of dry red wines.

KEYWORDS

- Local yeasts,
- strain,
- red wines, winemaking center,
- physico-chemical parameters

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INTRODUCTION

The text discusses an invention related to oenology and biotechnology, specifically focusing on a native yeast strain isolated in the viticultural center of "Trifești" for the production of dry red wines. It mentions several known yeast strains used in the wine industry and their origins. The invention introduces a new yeast strain, Saccharomyces cerevisiae CNMN-Y-36, which was isolated from Merlot grape must and has unique morphological, physiological, and biochemical characteristics. This new strain is recommended for the production of dry red wines and can ferment carbohydrates in the presence of high phenolic content, expanding the variety of native yeast strains. The text describes the strain's characteristics, its practical importance, and the parameters for its cultivation. The strain is stored in a microbial collection for future use. Overall, the invention aims to provide a yeast strain with advanced properties to enhance the production of high-quality red wines, addressing an unexplored area in the viticultural center of "Trifești."

MATERIALS

- Yeast strain Saccharomyces cerevisiae CNMN-Y-34 for the production of dry red wines,
- White must, (Trifești viticultural center), red wines.

METHODS

- The scientific and practical basis of the use of yeasts in oenology. Soldatenco Olga; Chișinău 2021, 184 p.

RESULTS

The yeast strain can be used for the following examples:

❖ Example 1

The Merlot grape must was sulfited up to 75 mg/dm3 SO2, and the maceration-fermentation process took place for 7 days at a temperature of 26-28ºC. The assembly of the young wine was achieved by combining the free-run and press fractions, after which it was directed to the post-fermentation process. Selected pure yeast strains, specifically the native yeast strain Saccharomyces cerevisiae CNMN-Y-36, were used for the technological fermentation-maceration process. The volume of yeast solution used for the alcoholic fermentation of the grape must amounted to 2% of the initial grape must volume, and the fermentation-maceration process was conducted at a temperature of 26-28ºC. The fermentation-maceration process was characterized by a controlled and fairly intense fermentation of the grape must, resulting in complete sugar fermentation. The obtained dry red wine features a deep ruby color, a clean aroma with fruit notes, a clean, full, slightly astringent, and well-balanced taste. The organoleptic score is 8.1. Thus, the use of the Saccharomyces cerevisiae CNMN-Y-36 yeast strain allows for the production of high-quality dry red wine.

❖ Example 2

The Merlot grape must was sulfited up to 75 mg/dm3 SO2, and the maceration-fermentation process lasted for 7 days at a temperature of 26-28ºC. The blending of the young wine was achieved by combining the free-run and press fractions, after which it was directed to the post-fermentation process. Selected pure yeast strains, specifically the native yeast strain Saccharomyces cerevisiae CNMN-Y-36, were used for the technological fermentation-maceration process. The volume of yeast solution used for the alcoholic fermentation of the grape must amounted to 3% of the initial grape must volume, and the fermentation-maceration process was conducted at a temperature of 26-28ºC. The fermentation-maceration process was characterized by a controlled and fairly intense fermentation of the grape must, resulting in complete sugar fermentation.

The obtained dry red wine features a deep ruby color, a clean aroma with pronounced red fruit notes, a clean, slightly astringent, and well-balanced taste. The organoleptic score is 8.1. Thus, the use of the Saccharomyces cerevisiae CNMN-Y-36 yeast strain allows for the production of high-quality dry red wine.

*Initial parameters of Merlot grapes: sugars 225 g/l, titratable acidity 6.0 g/l, pH 3.1.

CONCLUSIONS

- ✓ The invention relates to oenology and biotechnology, in particular to a native yeast strain, isolated in the "Trifești" winemaking center and recommended for the production of dry white wines.
- ✓ The problem that the invention solves consists in obtaining a strain of autochthonous yeasts with advanced technological properties, especially with the ability to ferment carbohydrates at low temperatures, thus expanding their assortment.
- ✓ The yeast strain Saccharomyces cerevisiae is isolated in pure culture and deposited in the National Collection of Nonpathogenic Microorganisms of the Institute of Microbiology and Biotechnology with the number CNMN-Y-36.
- ✓ The result consists in the selection of a strain of yeasts for the production of dry white wines, which possess capacities of fermentation of carbohydrates at low temperatures, widening the assortment of native strains.